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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,770	08/28/2003	Takashi Kojima	2635-170	5855
23117	7590	04/19/2005	EXAMINER	
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			GARBER, CHARLES D	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/649,770

Applicant(s)

KOJIMA, TAKASHI

Examiner

Charles D. Garber

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 06 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 2, 4-7 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: "over" should be spelled --cover-- in the eighth line of the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US Patent 5,874,664) in view of Nestor (US Patent 4,325,600).

Regarding claims 1 and 5, Watanabe discloses air fuel (gas) ratio sensor 1 with housing 4, detecting (sensing) element 3 shown in the figures to be within the housing,

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cover 12 with first and second ends (bottom top portions of cover), and four sensor leads shown in an embodiment depicted in figures 2 and 3 (column 12 line 58 to column 13 line 10).

Watanabe also discloses seal member 2 "made of an elastic and electrically insulating material" and shown in figures 1-3 within the top (second) end as in the instant invention. The seal member has four holes 20.

Watanabe discloses values  $t_2$  and  $t_1$  corresponding to hole spacing and edge distance respectively as in the instant invention. The value  $t_2$  must be at least 1.0mm for proper waterproofness and durability. Watanabe also teaches  $t_1$  is less than  $t_2$  but that the value for  $t_1$  must be 1mm or more. (column 11 lines 37-46, column 13 line 46 to column 14 line 63).

Watanabe further discloses the cover is crimped to retain the elastic member at 12A-1 shown in figure 1.

However Watanabe does not show that at least one of the holes 20 is aligned with the longitudinal center line of the device.

Nestor discloses an oxygen sensor 10 with guard 34 or cover teaching a configuration of four sensor wires 26, 27, 28, 29 arranged so that one of the wires is aligned with the sensor cover longitudinal center line as shown in figure 2.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange four sensor wires with one aligned with the sensor longitudinal center line. Where minimum spacing between wires is critical as in Watanabe such an arrangement will allow for a substantially smaller diameter cover

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thus making for a more compact device. The diameter of the cover will be approximately 20% smaller assuming unity for the hole diameter, spacing and edge distances.

As for claim 2, Watanabe discloses 10-20% crimping deformation is optimal (column 13 lines 64-67).

As for claim 4, Watanabe also teaches annular ribs (figures 8A, 8B, 9A, 9B) in lead wire holes of the elastic member. The "provision for ribs allows the ribs to be more easily deformed, thereby obtaining a desired seal between the lead wires and the corresponding holes, resulting in an increased waterproofness of the air fuel ratio sensor."

As for claim 6, Watanabe shows all the holes at regular intervals. Nestor, likewise, teaches the surrounding holes at regular intervals which is advantageous for the same reasons given above. The regular spacing allows for a minimal overall size of the device.

As for claim 7, the references do not teach six holes. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made with six holes, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Applicant's combining elements of claims 2 and 3 essentially required

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using the Watanabe references as the primary basis of any rejection. While modifying the Ohta reference with Leach seemed quite reasonable to the Examiner (Ohta was very general with respect to lead wire arrangement which lends itself to modification) modifying the Watanabe reference with Leach seemed more difficult and was therefore given up in favor of the teachings in Nestor. Nestor is more specific to wire arrangement as is Watanabe.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 6:30 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdg

A handwritten signature in black ink, appearing to read "Charles Garber", followed by a horizontal line.

**CHARLES GARBER  
PRIMARY EXAMINER**